

Attorney's Docket No.: 15670-032002/ SD1998-065-2

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CENTRAL FAX CENTER****OCT 30 2006**REMARKS

Applicant gratefully acknowledges the examiner's withdrawal of rejections over prior art in the prior Office Action dated February 28, 2006. In response to Final Office Action dated August 29, 2006, the application is further amended to place the application in a full condition for allowance.

First, Claims 58, 63, 67-68 and 73 have been amended to replace the word "first" by the word "second" per Examiner's suggestion to overcome the rejections under 35 USC 112, second paragraph. No new matter is added. These rejections, therefore, should be withdrawn.

Second, Claim 64 has been canceled to overcome the objection under 37 CFR 1.75.

Third, Applicant respectfully suggests that Claims 13, 28, 51 and 60-63 are patentable under 35 USC 112, first paragraph because the claimed subject matter was described in the original specification.

Claims 13, 28, 51 and 60-63 recite the plane strain fracture toughness of greater than $40 \text{ MPa(m)}^{1/2}$ based on the description on page 21, lines 9-11 of the original specification. Apparently, Applicant and Examiner disagree as to what is described on page 21, lines 9-11 of the original specification as the unit for the toughness.

To be clear, it is well known in the mechanical engineering field that the fracture toughness of a material has a unit of a $P(L)^{1/2}$ where P is a pressure unit and L is a length unit. If the pressure unit is MPa for "mega pascals" and the length unit is m for "meter," the unit for the fracture toughness is

 $\text{MPa (m)}^{1/2}$

(1)

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or in an alternative form of

$$MPa\sqrt{m}. \quad (2)$$

The unit for the toughness on page 21, lines 9-11 of the original specification uses the form (2) as shown above. More specifically, the express for the toughness unit on page 21, lines 9-11 of the original specification is

$$40 \text{ MPa}\sqrt{m}$$

where the square root sign " $\sqrt{}$ " appears to be slightly different from the form (2) because the horizontal line of the square root sign " $\sqrt{}$ " on page 21, lines 9-11 of the original specification does not extend to cover the letter "m" for meter. For Examiner's reference, a photocopy of page 21 of the original specification is attached here.

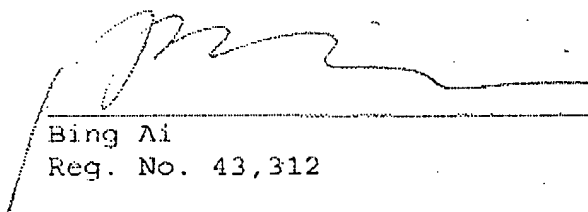
Applicant respectfully submits that, because the text for the symbol " $MPa\sqrt{m}$ " on page 21, lines 9-11 of the original specification unambiguously specifies "toughness" and because the toughness unit is $MPa\sqrt{m}$ when the pressure is in MPa and the length is in meters to a person of ordinary skill in this field, the symbol " $MPa\sqrt{m}$ " on page 21, lines 9-11 of the original specification can only be constructed as $MPa\sqrt{m}$. In addition, the symbol " $MPa\sqrt{m}$ " on page 21, lines 9-11 of the original specification is the toughness unit for the amount of "40" in toughness as described, there is no other alternative interpretation to the symbol " $MPa\sqrt{m}$ " other than $MPa\sqrt{m}$ in the context of the description on page 21, lines 9-11 of the original specification. Therefore, Applicant respectfully requests the Examiner to withdraw the rejections.

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To facilitate expedite resolution of outstanding issues, Applicant cordially invites the Examiner to telephone Applicant's attorney of record, Bing Ai, at his office number (858) 678-4327 should the Examiner deems the this response insufficient to overcome the rejections.

This filing is timely because October 29, 2006, was a Sunday and no fee is believed to be due for this filing. Please apply any other charges or credits to Deposit Account No. 06-1050.

Respectfully submitted,

Date: October 30, 2006
Bing Ai
Reg. No. 43,312

Fish & Richardson P.C.
PTO Customer No. 20985
12390 El Camino Real
San Diego, California 92130
(858) 678-5070 telephone
(858) 678-5099 facsimile
10664594.doc

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Attachment - Photocopy of Page 21 of
original specification

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The armor typically has a density between 3 and 4.5 grams per cubic centimeter, and more typically less than 4 grams per cubic centimeter.

5 It may have residual internal stresses between the metal layers and the intermetallic regions, be conformed and adapted to non-planar contours. It is a strong candidate to meet the threat Level IV standard for body armor as defined by National Institute of Justice standard 0101.03 as of January 1, 1998.

10 Although hard to measure, the metal layers normally have a toughness greater than 40 MPa√m while the regions of intermetallic material have a Vickers microhardness of greater than 400 kg/mm².

15 Any of the metal layers and/or intermetallic regions may be of differing thickness. Such residual internal stresses as exist between the metal layers and intermetallic regions may serve to more substantially deflect a penetrating projectile from off its axis of impact than would be the case for the same penetrating projectile without the residual internal stresses.

20 The non-planar contours to which the composite laminate material is conformed and adapted may be: corrugations. Forming the material in the contour is a simple matter of laying up thin metal layers, or foils, that are corrugated before subjection the stack of metal layers, or foils, to heat and pressure. It is of no matter that slight air pockets and/or a slight mechanical mis-match of corrugated foils might initially exist in the stack. Everything
25 forms into the solid composite material during processing.

The corrugated composite laminate material enjoys all the normal mechanical and strength advantages of corrugation. In other words, it may be capable of better supporting a load aligned with axis of corrugations in the plane of the material without buckling or bending. To this extent the utility of the material for
30 construction, including for load-bearing walls and the sides of armored vehicles, is enhanced. Equally importantly, the corrugations help to turn the path of an impacting projectile. To account for the statistically small probability that the projectile